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THE EXTRACT AND FLUID EXTRACT OF GUARANA, WITH
GENERAL REMARKS ON PERCOLATION AND THE MANU-
FACTURE OF MEDICINAL EXTRACTS.

BY J. B. MOORE.

Paullinia has, within the last few years, attained considerable local popularity in some sections of our country, but it is little known to the great mass of the medical profession, especially in this city. It is better known, and has attracted more attention, and has been more extensively prescribed in the East and West than in any other part of the United States.

In consequence of its limited use in this city, it is a comparative stranger to many of our pharmacists.

There seems to be very unsettled views among physicians not only in regard to its physiological action and therapeutic application, but also in regard to the dose in which it should be administered. These important matters have not yet been satisfactorily determined.

Upon inquiry among my medical friends who have used guarana in their practice, I have received very conflicting reports of its therapeutic value. While some extol it highly, others condemn it as worthless and almost inert. Like all new remedies, it is simply in transit through the fiery ordeal of trial in the cure of almost every disease to which human flesh is heir. Therefore, we must expect it for a time to sustain an uncertain and variable reputation. It cannot be expected, no more than could bromide of potassium or the famous cundurango, to cure every malady in the whole catalogue of human ailments. It has, like all other remedies, its circumscribed application, and only those physicians who are guided in its use by wisdom and judgment will derive satisfactory results from its administration. After awhile its medical virtues will be determined and

established, and if it has any merit it will become popular in the few diseases for which its peculiar properties adapt it.

Judging from my knowledge of its active constituents, and from what I have been able to glean from published accounts of its medicinal virtues, I am led to believe that it is more especially in nervous and sick headache and in other disorders of the nervous system that physicians must look for the best effects from its employment.

Tonic properties are also ascribed to it, but these I should think were feeble, and the medicine would not be relied upon for these properties alone, especially when the physician has so many valuable and well-established remedies of this class at his command. These properties, however, as associated with its astringency and other properties, may contribute to its efficiency in the treatment of diseases to which it is peculiarly adapted.

Some writers speak of it highly as a remedy in the diarrhœa of phthisis and also in idiopathic diarrhœa. The application of it to diseases of this character seems rather singular, and, I should think, of doubtful propriety, unless its use be restricted to chronic cases, inasmuch as it so closely resembles coffee, not only in physiological action, but also in its active constituents.

The strongly laxative tendency of coffee, especially when the bowels are in an already irritable condition, is well known to all; and to such an extent does this tendency exist that many judicious practitioners strictly inhibit its use in the existence of diarrhœa or other lax conditions of the bowels.

But, as *Paullinia* seems to contain considerable tannic acid, this may so modify its effects, and so control and qualify the action of its caffeine, as to render its use admissible in recent cases, and may possibly make it a useful remedy in chronic disorders of this class.

But this is a matter that must be settled by the intelligent and observing physiologist and therapist. I merely have referred to the matter in order to awaken closer observation and to stimulate, on the part of physicians in their practice, a closer scrutiny into its effects in this class of diseases.

For all of us, both physicians and pharmacists, are liable at times to be led astray by the published experience of our professional brethren; and we thus sometimes take things for granted, which often prevents us from making any personal investigation; but the moment a doubt is raised in our minds, and we begin to observe and

investigate for ourselves, we often discover that we have been deceived and misled, and that "it is not all gold that glitters."

Unfortunately, physicians frequently make a great mistake in their experiments to test the effects of a remedy and to ascertain its true physiological action, by too often prescribing the remedy under trial associated with other active medicinal agents, and, so, effects are often credited to the new remedy that are due to those with which it is associated. To judge, with any degree of accuracy, of the effect of a remedy, it should be prescribed alone or with comparatively inert substances.

My friend, Dr. Wm. B. Atkinson, of this city, informs me that he has witnessed the most prompt and beneficial effects from the use of guarana in sick and nervous headache, in his practice.

I have occasionally received prescriptions for it in powder, for the last two or three years, but it was not until recently that I have had it prescribed in the form of fluid extract; and not having any of the latter on hand, and knowing of no published formula by which to make the fluid extract, I at once sent for it to several of our leading pharmacists, but could not obtain it. So, thinking that I might, perhaps, have future calls for it, I concluded it would be well for me to devise a formula and process for its preparation. The expensiveness of guarana, however, made it rather an uninviting subject for experiment; but as I was fortunate in my first conception of its character, and the proper strength of menstruum required for its exhaustion, I encountered but little difficulty in framing a suitable formula. And as there is, to my knowledge, no published formula for a fluid extract of guarana, I here present the one I have adopted, which I offer for the benefit of my professional brethren, who may be thus enabled to make the preparation for themselves, and thereby be able to insure its reliability, for this is doubly important in a new remedy, which is still the subject of experiment by the medical profession, to determine its physiological action.

R.	Pulv. Paullinæ,	.	.	.	.	.	℥xvi troy,
	Alcohol. Fort.						
	Aquæ,	.	.	.	.	.	aa q. s.

Mix three measures of stronger alcohol with one of water, moisten the powder with the menstruum and pack it in a glass funnel prepared for percolation, and gradually pour the menstruum upon it, until one pint of tincture is obtained. Set this aside, in a shallow vessel, to

evaporate spontaneously to twelve fluidounces; continue the percolation with the same menstruum until two pints more of the tincture are obtained, or until the powder is exhausted. Evaporate this by means of a water-bath, at a temperature not exceeding 140°, to four fluidounces. Mix this with the reserved tincture and filter through paper.

This formula yields a perfectly reliable preparation. It is transparent, of a deep reddish-brown color (almost identical in appearance with the fluid extract of gentian), with a bitter, astringent, not unpleasant taste, leaving an after-taste on the palate strongly resembling that of coffee.

The menstruum employed in the above process is well calculated to thoroughly exhaust the drug of its virtues, and the proportion of spirit retained in the finished product holds in perfect solution all its soluble active matter. A sample of this fluid extract, made over three months ago, is still in excellent condition, showing no signs of change, and is entirely free from deposit.

In an emergency, a solid extract of guarana may be made by carefully concentrating the fluid extract, by means of a water-bath, to the proper consistence. But, as this medicine is likely to be often prescribed in the form of pills, a definite formula and process for making a solid extract should be made known. I therefore, after some experiments with perfectly satisfactory results, offer the following process, which affords a most excellent solid extract of the drug, unimpaired by process of preparation, if the directions given for its manufacture be observed:

R.	Pulv. Paullinæ,	℥xvi troy
	Glycerinæ,	℥ss,
	Alcohol. Fort.,	
	Aquæ,	aa q. s.

Mix three measures of stronger alcohol with one of water, moisten the powder with the menstruum and pack it in a glass funnel prepared for percolation, and gradually pour the menstruum upon it until one pint of tincture is obtained. Set this aside, in a shallow, open vessel, in a warm place. Continue the percolation with the same menstruum until two pints more of tincture are obtained, or until the drug is exhausted. Evaporate this by means of a water-bath, at a temperature not exceeding 140°, to a syrupy consistence. To this add the reserved portion and the glycerin, and continue the evapora-

tion, at a temperature not exceeding 120° , until the whole is reduced to the proper consistence.

During the concentration, in making this extract, the liquid should be stirred almost constantly, and especially is this necessary at the close of the process.

In the manufacture of all extracts, both solid and fluid, this important precaution of stirring during the evaporation should be observed as it is by the neglect of this that the products in such cases are so often injured by heat. When it is observed, the concentration proceeds more rapidly and satisfactorily, and the medicinal virtues of the drug under treatment thus enjoy a comparative immunity from the injurious influences of heat.

In making fluid extracts, when reserved portions are to be concentrated to a given point, by either artificial or spontaneous evaporation, preparatory to receiving the product of the remainder of the percolate, it is very important to see that the concentration does not proceed too far.

The evaporation should be closely watched, and the moment it has reached the desired point, the liquid should at once be transferred to a bottle and tightly corked, to await the product of the remainder of the process. The neglect of this apparently trifling point is often the cause of entire failure, or at least of great inconvenience, and not unfrequently leads to the production of imperfect and faulty preparations; as, owing to the uncertainty of the composition of the liquid after evaporation has once been permitted, its loss cannot be supplied with any degree of accuracy, especially when it is a liquid of a compound nature; such, for instance, as alcohol.

Formulas are in this way sometimes blamed for imperfections when it is the carelessness or inattention of the operator that is at fault.

Much care is also necessary in the concentration of the *last* portion of the percolate in making fluid extracts; where the liquid to be evaporated is a simple, as water, ether, chloroform, &c., the same care is not requisite to guard against excessive concentration, as the loss, in such cases, may be supplied by the addition of fresh portions of the respective liquids; nor is it so important even when alcohol is the liquid under treatment, if, in the operation, *all* of the alcohol is supposed to be expelled, because then water may be used to make up the loss, but if the spirit is to be only partially driven off, then care is absolutely necessary, for reasons just stated.

If the attempt be made, under such circumstances, to supply the waste occasioned by excessive evaporation, it may be the means of causing precipitation or other untoward result, when this portion of the percolate is added to the reserved portion. It is the object of the suggestions offered in this paper to impress indelibly, if possible, upon the minds of all inexperienced pharmacists the importance of these little points that are so essential to success in all pharmaceutical manipulations, yet which are so often overlooked, both by writers and teachers.

In writing upon subjects of this kind, I hold that the author should be as exhaustive as possible, for it is better, in such cases, to err on the side of prolixity than on that of brevity.

In this respect, Dr. Squibb is, I consider, a model, and should be an example to all who pretend to essay this kind of writing. For perspicuity, I think the doctor surpasses any writer in this country on practical pharmacy.

It is just this lack of explanatory detail in our Pharmacopœia that often deters many, especially young and inexperienced pharmacists, from making many of the preparations which they now buy ready-made.

The directions given for the manufacture of many of the preparations in our Pharmacopœia are entirely too brief and inexplicit. The U. S. Dispensatory, in some instances, supplies the deficiency to some extent.

If the directions in the Pharmacopœia were supposed to be addressed to scientific and experienced chemists and pharmacists, they would then be all that we could ask, but, unfortunately, they are not. I hope to see some improvement made in this respect in the next revision. It is but a small volume, and a slight increase in size would not render it unwieldy.

When a hydro-alcoholic liquid is to be evaporated, and it is important that all the spirituous portion should be expelled; for example, as was formerly the case in the manufacture of the fluid extract of ipecac,—this is only imperfectly accomplished when the liquid is not diligently stirred. The agitation throws fresh portions of the liquid constantly to the surface, and thus favors the liberation of the alcohol.

By the above process I obtained from nine hundred and sixty grains of powdered guarana, three hundred and thirty grains of ex-

tract of a good pill consistence, which is about one-third, or thirty-three per cent. of its weight.

This yield was the result of a carefully-conducted experiment, in which no glycerin was used; although I do not think that the presence of the glycerin would influence the result much, as it simply takes the place of the water that would otherwise be retained in the extract to give it consistence.

This small proportion of glycerin, I think, will be sufficient to preserve the extract in good pill consistence for an almost indefinite period. I have a sample of extract of gelsemium made in January, 1869, and another of extract of opium, made about eighteen months ago, to which was added about the same proportion of glycerin, and these extracts are both to-day in as good condition as when first made.

Pharmacists would find that the addition of from five to ten per cent. of glycerin to all extracts which are prone to harden in keeping would save them the annoyance which is so frequently experienced in dispensing from this cause.

I have been in the habit, also, of incorporating a small portion of glycerin with blue mass just when it begins to stiffen and become inconvenient for forming into pills; I add just enough to restore it to a good pill condition.

The formulæ for our officinal solid extracts should receive some attention at the hands of the Committee when engaged in making the next revision of our Pharmacopœia, and among other amendments a small portion of glycerin should be directed in each, where its use would be deemed admissible and advantageous; so that not only pharmacists themselves, but that our wholesale manufacturers would have some guide in its use in making these preparations; for it is chiefly from these that the retail pharmacists derive their supply, as they prepare comparatively few themselves, though in the case of many of the extracts they might do so advantageously. In fact, there are a few of our solid extracts which I think every conscientious dispensing pharmacist should feel it obligatory upon himself to prepare, such, for instance, as rhubarb, cinchona, valerian, and others that might be mentioned. Some extracts, as obtained wholesale, I have often found entirely worthless.

The active constituents of some of these extracts, being very sensitive to heat and atmospheric influences, are very liable to be injured

in their preparation. It is not only at the close of the operation that some of these extracts may be rendered almost entirely inert by the decomposition or dissipation of their active principles, but there are well known reactions and changes, that are apt to occur at any stage of the process unless the greatest care and vigilance be observed in the regulation of temperature, etc., and especially is this the case with rhubarb and cinchona.

In large manufacturing establishments the same careful attention is not always given to the *little* details of the operation, which so greatly influence the quality of these products, that the retail pharmacist would give in his own laboratory.

There are, however, several of the narcotic extracts, such, for instance, as belladonna, hyoscyamus, etc., that are better obtained from abroad, owing to the foreign manufacturer having greater facilities for procuring the plants from which they are made in a more recent and better condition. I have generally found these extracts, as prepared by several of the more prominent English manufacturers, to be of uniformly good quality and reliable, seemingly to have been prepared with much care, and with a conscientious regard to their *excellence*.

This paper will not be complete until I shall have said something in regard to the dose of guarana, especially as there seem to be such conflicting views among medical men in this regard. I shall therefore endeavor to contribute my mite towards giving physicians who are unaccustomed to its use some guide in its administration.

In the United States Dispensatory, page 1670, edition 1870, guarana is directed to be given in substance, in the dose of from one to two drachms, while of the extract only from eight to ten grains are directed to be given, *during the day*, in pill form. Here seems to be a great and unaccountable disparity of dose between the extract and the powder. Either the dose of the powder is unnecessarily large or that of the extract is much too small. The dose in which the powder is directed I have no doubt is excessive. I should think that the proper dose of guarana, in substance, would be from fifteen to thirty grains.

Taking this as a basis, the dose of the fluid extract would be from fifteen minims to a half fluidrachm, or from about twenty-three to forty-five drops, as a fluidrachm was found to contain about ninety drops, as dropped from the lip of an ordinary six-ounce prescription

bottle; while the dose of the solid extract would be from five to ten grains, to be repeated every two, three or four hours, or three or four times a day, according to circumstances.

As there seem to be no established data to be taken as a guide in its administration, the above I should think would be a safe approximation to the proper dose. Physicians, of course, can increase or diminish the dose as their experience and the indications seem to suggest or demand. In this way, after a while, the proper dose may be more accurately determined.

The fluid extract of guarana is most agreeably administered mixed with simple syrup or the syrup of orange, in the proportion of from fifteen to thirty drops to a dessertspoonful of the vehicle.

In the treatment of various nervous affections, headaches, etc., I have no doubt that bromide of potassium, valerianate of ammonium, hydrate of chloral, valerian, morphia, belladonna, hyoscyamus, and tincture of hops will be found to be its best adjuncts and most eligible associates in prescription.

As syrup seems to be so pleasant a vehicle for guarana, I have no doubt a syrup of guarana would be a very desirable and useful preparation of the drug. I am therefore about commencing some experiments with the view of framing a suitable formula for such a preparation, and when I have succeeded I shall make it known to the readers of this journal.

I did think a tincture might also be desirable; but, as the dose of guarana in substance is quite large, and it requires so strongly alcoholic a menstruum for the solution of its active principle, the proportion of spirit in such a preparation would be objectionable, and would be injurious, therapeutically, in the class of diseases in which guarana would be likely to be most generally employed.

I will now resume my remarks and suggestions on percolation.

The powder in both the above formulæ, after being moistened for percolation, should be passed through a No. 20 sieve previously to packing, in order to break up any little lumps or aggregations that may be formed by the moisture.

I have, for years, been in the habit of treating almost all powders in this way after they have been moistened. The sieve not only finely and uniformly divides the powder again and restores it to the *most perfect* condition for packing, but it also removes any portions that are imperfectly powdered or any accidental impurities. (I, of course, refer here to powders obtained from commercial sources.)

Any one who has never tried this plan will be surprised at its advantages, and will sometimes be astonished at what the sieve will remove from powders that were apparently perfectly uniform and pure. Of course, the sieve employed for this purpose must not be too fine. For powders ranging from No. 40 to 80 about a No. 20 sieve will answer, and for coarser powders a coarser sieve in proportion.

I would recommend to inexperienced operators the plan I have adopted in percolating powdered substances with which I am not familiar, or which I have not treated for some time, which is to first moisten only a small portion of the powder, and pack it according to your best judgment, pour upon it a small portion of the menstruum, just sufficient to see how it enters the powder. The unabsorbed portion should then be returned to the remainder of the menstruum and the moistened powder should be returned to the remainder of the powder and thoroughly mixed with it before the addition of more menstruum. By this means we can generally form a correct idea how the whole of the powder should be packed. When operating with a pound or more of material, I have often made several of these preliminary trials with small portions of the powder. It is important, however, not to take too much of the powder for these experimental trials, or the moisture absorbed by it may make the reserved portion of the powder, when mixed with it, too moist for correct packing. This simple expedient may often save the operator much vexation, and even *entire failure*, in important operations in making fluid extracts.

It may be well for me, in this connection, to say a word also in regard to the manner of moistening powders preparatory to percolation, and of packing them when moistened.

Many pharmacists are in the habit of using a stick or other instrument with which to stir the powder as the menstruum is added, as though contact with the substance would prove fatal. By this dainty method of manipulation, powders are often very irregularly and imperfectly moistened, and a much longer time is consumed in the operation than would otherwise be required, resulting, in hot weather, in a considerable loss of menstruum by evaporation. In this way, too, the powder is often left full of lumps or masses, with some portions too moist, others too dry, and the whole in a bad condition for packing.

I would here remark that the fastidious man who is afraid of soiling his hands in the legitimate operations of the laboratory or the dispensing counter, would be quite as likely to make a good blacksmith as a good pharmacist. This is rather a homely simile, but it is nevertheless a very expressive one.

It is one of the essential points in successful percolation to have the powder in just the right condition for packing, both as regards state of moisture as well as state of division. Now this can be most thoroughly and satisfactorily accomplished by rubbing the powder between the hands, as the moisture is added, and working it not unlike the practical housewife does her flour in the first part of the process in making bread. This thorough intermixing and rubbing uniformly and equally distributes the moisture, and also, in a measure, breaks up the lumps and little aggregations which often form in such powders when moistened. It is only by means of this kind of treatment, and the subsequent use of the sieve, as recommended above, that powders can be brought to that perfectly uniform condition so essential for correct packing for percolation.

When operating with substances which contain much coloring matter, such as the cinchonas, red saunders, etc., it will be well for the operator to wear a pair of India rubber gloves, which I have found exceedingly useful to protect the hands in many operations of the laboratory.

In packing the powder in the percolator many use a packing stick; I have never found such an instrument satisfactory. When practicable, I always use the back of my fingers held firmly together; I can thus, by direct touch, know how much pressure I am using, and can regulate it with greater accuracy.

In packing, special attention should be given to the quantity of powder that is added to the percolator at a time, as well as to the amount of pressure used. In all ordinary operations the powder should be packed in small portions at a time, in strata of not more than from a quarter to a half inch in thickness. Many operators are in the habit of introducing the whole of the powder into the percolator at once, which I consider a great mistake, as then the mass receives the maximum of pressure at the very point at which it should receive the least, and that is at the top.

For several years I have adopted the plan, especially when operating with a large quantity of any substance, to gradually diminish the

pressure in packing as I near the top, as it is the lower portions of the powder that are likely to escape thorough exhaustion. The upper portions have always the advantage of contact with the menstruum before its solvent power has become enfeebled as it gradually does in its descent, so that when it reaches the extreme lower portions of the mass this power is almost entirely exhausted.

In cases where a preliminary maceration is considered necessary, and especially when the substance under treatment is of a tough, compact and impenetrable nature, I would recommend that that portion of the menstruum with which the powder is moistened be previously heated, which can be easily done in a few minutes in a stone or tin vessel, or in a bottle tightly corked and placed in a water-bath. The maceration should also be conducted in a warm place.

The power of heat to expand vegetable tissue when moist, and to augment the power and energy of solvents, is well known; by its aid, when judiciously managed, the pharmacist may, in his manipulations, often greatly shorten tedious and lengthened processes.

It will generally be found necessary to moisten powders more that are intended for preliminary maceration than those intended for immediate percolation, otherwise they are apt, during the process, to become too dry for packing without afterwards being remoistened.

In the next number of this journal I shall present a paper, as a supplement or continuation of this, which will embrace comments upon the *new processes* of percolation in the manufacture of fluid extracts, especially the one adopted in the last revised edition of the U. S. Pharmacopœia; I shall add, also, suggestions as to a new plan by which the next revision of the Pharmacopœia may be rendered more complete and thorough.

Philadelphia, October, 1874.

AROMATIC SULPHURIC ACID.

By S. WHITTIER.

This valued medicine, prepared according to the U. S. Pharmacopœia, has objections apparent to every physician and pharmacist.

1st. Its instability (requiring frequent filtration).

2d. The precipitate it gives when mixed with water.

Thinking it justifiable to attempt an improvement, avoiding any alteration that would impair the virtues or change the general character or appearance of the preparation (except its *objectionable* char-

acteristic), I devised the following formula, which, I believe, produces the *intended* preparation, *i. e.*, a diluted aromatic sulphuric acid of a dark-red color :

R.	Sulph. Acid, C. P.,	.	.	.	troy, ℥vi.	(6).
	Alcohol, 95 per cent.,	.	.	.	Ol.	(1).
	<i>m. s. a.</i>					

When cool, add the following *flavoring* mixture :

R.	Oil Cinnamon,	.	.	.	gtt.	(5).
	" Ginger,	.	.	.	gttvii.	(7).
	Alcohol,	.	.	.	℥xiv.	(14). <i>m.</i>

Afterward, add the following *coloring* mixture :

R.	Rosæ Gallicæ Petal.	.	.	.	℥i.	(1).
	Aquæ Bullientis,	.	.	.	q. s.	

Pour the boiling water on the rose leaves, and express ℥ii (2), then filter the entire preparation, and it will remain clear and unchangeable, and will mix with water without forming any precipitate.

As the propriety of using the *oils* may be questioned, I will quote from the U. S. Dispensatory on the properties of aromatic sulphuric acid :

"It must be viewed merely as sulphuric acid diluted with alcohol, and containing the essential *oils* of ginger and cinnamon."

The red-rose petals produce the desired *color*.

The proportion of oil was arrived at by an estimate of the average amount of oil contained in ginger and cinnamon.

By this method a very little water is introduced, displacing an equal bulk of alcohol; but if ninety-five per cent. of alcohol is used, this slight reduction will not admit of any *practical* objection.

It is over three years since I first prepared some aromatic sulphuric acid by this process, and, since then, I have submitted it to the use of several physicians. I have also carefully watched for any changes in it while standing in the store, and, finding only favorable results, I now submit the formula to the consideration of "whomsoever it may concern." *

Leominster, Mass., October, 1874.

*In the *American Journal of Pharmacy*, 1867, p. 201, Mr. Thos. N. Jamieson proposed to make aromatic sulphuric acid from oil of cinnamon, twelve minims; tincture of ginger, two fluidounces; alcohol, twenty-four fluidounces; sulphuric acid, six troyounces, and, if desirable, to color with saunders, or, preferably, with cudbear. Most modern Pharmacopœias direct this preparation to be made from the drugs, like the U. S. P.; it has been discontinued in some, as in the French Codex since 1866.—*Editor Amer. Jour. Phar.*

ADULTERATION OF BEESWAX*.

BY ADOLPH W. MILLER, M. D., Ph. D.

For a year or two past there has been offered in this market, and most probably elsewhere, an article termed "refined beeswax." It is unusually handsome in appearance and is generally represented as being strictly pure. It may be known by all of it being of a uniform bright-yellow color, entirely free from the sedimentary stratum of impurities ordinarily found in country wax. Its surface is clean and glossy having no foreign particles adhering to it. On account of these apparent merits, it is usually sold at an advance on the price of the regular article. All of this so-called refined beeswax, so far met with, had been moulded into the shape of oblong blocks of uniform size, measuring about fourteen inches in length, eight in width and three in thickness, tapering slightly upwards, and weighing about eight pounds on an average.

The melting point of the refined wax was found to be 146° F., that of pure wax being 156° and that of paraffin from 137° to 140° . Its specific gravity is .929, placing it again intermediate between beeswax, .963, and paraffin, .871. Being thus induced to suspect the presence of the latter body, 100 grains of the refined article were heated for fifteen or twenty minutes with one ounce of sulphuric acid to about 350° F., several ounces of water were then added and after cooling, a sheet of paraffin weighing 80 grains was obtained, the loss representing the beeswax which had been carbonized by the acid. In order to verify the experiment, it was repeated with a composition of four parts paraffin to one of wax, when analogous results were obtained. 100 grains of pure paraffin, treated in the same manner, were recovered unchanged.

All the best test-books recommend fuming Nordhausen acid for this purpose, and state that an allowance must be made for a portion of paraffin charred by this acid. No one seems to have previously tried the ordinary commercial sulphuric acid, which was really found to be better adapted than the Nordhausen, as all the wax was carbonized and none of the paraffin affected.

The test is very readily applied, the only difficulty, and this a very trivial one, being the separation of the carbonaceous matter from the paraffin. It is most conveniently removed by repeatedly melting the

*Read at the Pharmaceutical Meeting October 20.

paraffin on water, at the same time gently stirring it, so that the black particles can subside.

There seems to be a considerable difference in the mode of contraction, while cooling, between beeswax and paraffin, and this may serve to detect the adulteration, at least when practiced to this extent. Blocks of paraffin are decidedly concave on the top, and the specimens of adulterated wax presented herewith will be observed to be more or less concave on top in proportion to the amount of paraffin which they contain. Pure beeswax appears to be level, the contraction acting in a horizontal direction and tending rather to the production of vertical fissures.

The optical behaviour is also different; pure wax is quite opaque, while this adulterated article is somewhat translucent, more particularly on the edges.

Although no injury is likely to result from this admixture, it is an evident fraud, as there is considerable difference in the commercial value of the two substances. It may be asked, in this connection, whether it is not time for the Pharmacopœia Committee to turn their attention to paraffin, since we have thus again detected it forcing its way into pharmacy under the garb of beeswax, cosmolin and vaselin.

ADULTERATED SERPENTARIA.

A short time ago, I received, from one of our wholesale drug houses, a lot of *Radix serpentariæ*, which, upon examination, was found to be largely adulterated with golden seal. This fraud has come under my notice twice within the past year, and, in the last instance, was too apparent for me to allow it to pass unnoticed. The condition in which *serpentaria* is found in the market is generally in a loose or unpressed state. Its long, twisted and knotted rootlets, together with a surplus amount of earth (a fact to be remembered), gives those persons a clear field to accomplish the adulteration; for, in case the golden seal should become broken during handling, it would expose the trick; but, the adhering earth becoming loosened and intermingled with the roots, the fraud is not so easily detected.

The rhizomes, with rootlets attached, of the golden seal that I found, were, by measurement, all the way from one quarter to one

inch in length, and rarely exceeding one-eighth of an inch in diameter, also averaging over two ounces to the pound of *serpentaria*.

Chicago, October 7, 1874.

P. L. MILLEMAN.

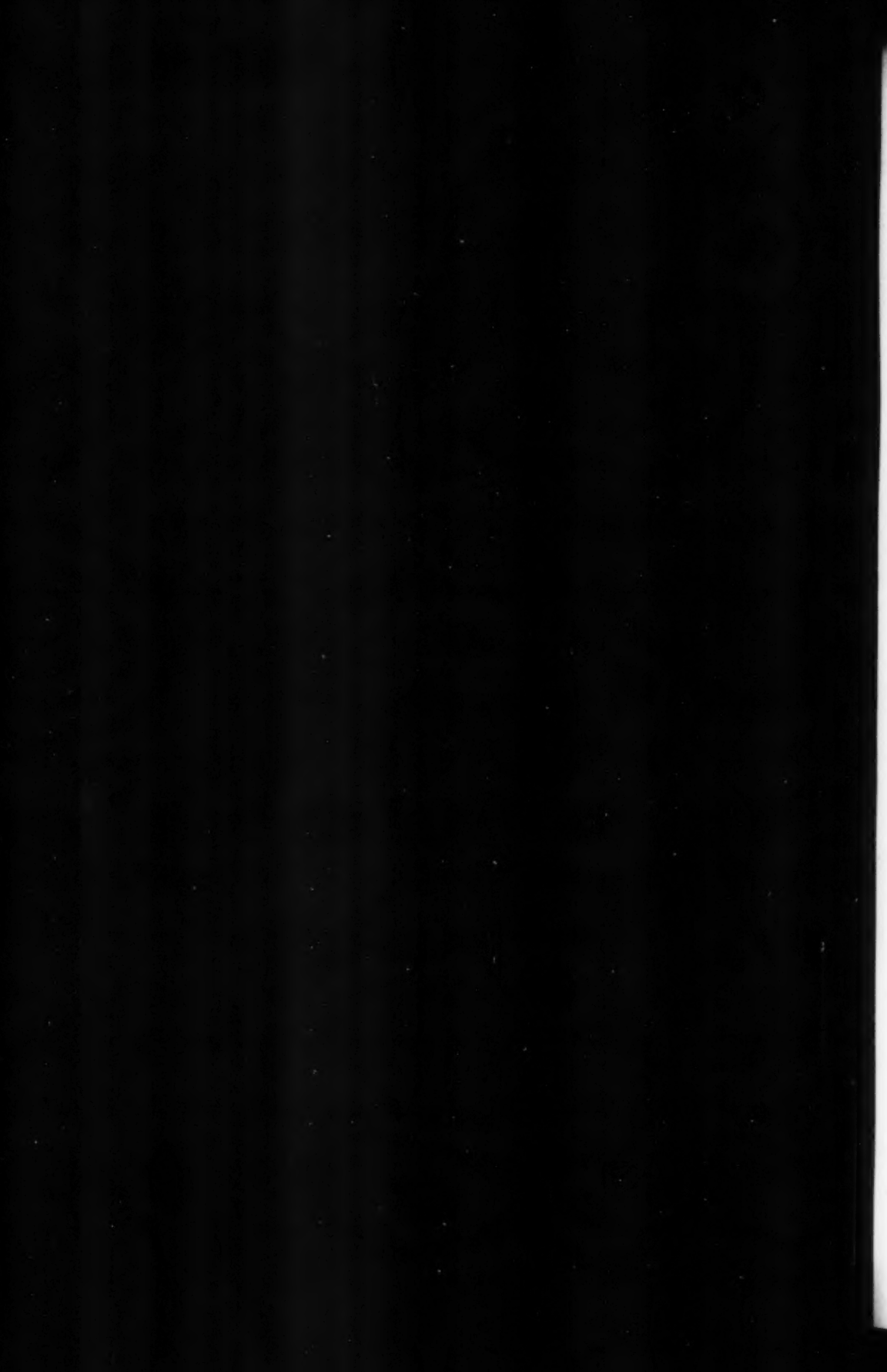
MEMOIR OF PROF. WILLIAM PROCTER, JR.*

The paternal ancestry of William Procter, Jr., can be traced by the family records to the County of York, England. Thomas Procter, who appears to have been the great-great-grandfather of the subject of our memoir, was an officer in the army of Oliver Cromwell. His descendants were converts to the doctrines of George Fox, and at an early period are recorded as members of the religious Society of Friends. Isaac Procter, the father of William Procter, Jr., was a man of exemplary worth; and we deem it interesting, as a prelude to the memoir of the son, to give a short sketch of the life of so worthy a sire.

The father of Isaac Procter resided in the city of York; he was a man in humble circumstances, but always maintained a high character for sterling worth and integrity; his family connections were highly respectable, and their acquaintance was among those more favored in temporal circumstances; among these was Lindley Murray (the grammarian).

Isaac Procter, after such home instruction as his parents were able to give him, was sent to Ackworth School for one or two years, and afterwards he learned the trade of a carpenter. After a great fire in London, he went to that city for employment. While there, it is recorded of him, "that his best suit of clothes was stolen from his chamber closet a few weeks after his arrival—no small loss to one whose means were so limited. It was months before he could, with the utmost economy, replace them, and yet he conscientiously continued to attend the religious meetings of Friends, without reference to his appearance. It was full six months before a single individual shook hands with him, or took the least notice of him; so keenly did he feel his isolated state, that he then firmly resolved that should he ever be placed in a situation of influence, no one attending the meeting to which he belonged should have the like experience; a resolution fully carried out, as many can testify." He continued to live in London two or three years, when he returned to York. Soon after, a minister of the religious Society of Friends from America mak-

*Read at the Semi-annual Meeting September 28.





William Procter Jr

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ing his home at the house of Lindley Murray, encouraged him to emigrate to America and come to Philadelphia in furtherance of his business pursuits. His mind appears to have been previously turned to a contemplation of this movement, and the advice given him decided the matter. Investing his savings in clothes and books, receiving many testimonials of kindness from relatives and friends, and letters of introduction, he bade farewell to family and home and embarked at London.

The ship William Penn, in which he came as a passenger, arrived in the Delaware in September, 1793. The yellow fever was then prevailing in Philadelphia, and the ship was not allowed to come up to the city. The passengers were landed at Gloucester, on the Jersey shore, after which the ship proceeded to New York to discharge her cargo.

Isaac Procter, with two companions, having left their trunks on the ship, proceeded on foot overland towards New York. An inland quarantine was at that time maintained to prevent the spread of the fever from Philadelphia.

On arriving at Haddonfield, they received the following passport :

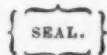
Gloucester County State of New Jersey, ss. :

Personally came before me, the subscriber, one of the Justices of the Peace, for the county aforesaid, Isaac Procter, housecarpenter ; Thomas Finlinson, printer ; and Joseph Crowder, bookbinder ; who came passengers in the ship William Penn from London, and bound to Philadelphia ; but, on hearing of the malignant fever which at present rages in that city, the said ship came to anchor in the river Delaware, opposite the town of Gloucester, in the county aforesaid, from whence the above-named persons were, on the 27th ultimo, landed at the said town of Gloucester, and have not been at Philadelphia ; and being desirous of travelling through this State to the city of New York, in order to settle themselves in their lawful vocation ; and requiring my pass for that purpose, I therefore recommend the said Isaac Procter, Thomas Finlinson, and Joseph Crowder to the notice and safe protection of the inhabitants of this State, in the prosecution of their said intended journey.

Given under my hand and seal, at Haddonfield, in the county of Gloucester aforesaid, the fourteenth day of October, in the year of our Lord, one thousand seven hundred and ninety-three, (1793.)

(Signed),

SAM'L KENARD.



The travellers crossed the Delaware above the city, and proceeded to Germantown, thence to Morrisville, stopping on the first day of the week to attend Friends meeting at Fallsington. After meeting,

they were invited to dine with one of the Friends, and on this occasion, Isaac Procter met with the lady who afterwards became his wife.

On their pedestrian journey, several certificates were given to them, commending them to the notice of Friends. One, a circular letter from John Pemberton and Samuel Emlen, Jr., and one which we transcribe as follows :

"I recommend the bearer hereof, Isaac Procter, to the friendly notice of such persons as he may fall in with in the course of his journey to New York, he being lately arrived from London, and not having been in the city of Philadelphia, or in any infected place, may safely be suffered to pass without interruption.

"(Signed),

NICHOLAS WALN.

"WALNVILLE, 5 miles from Philadelphia, (on high ground,
and in a pure air,) Tenth mo. 2d, 1793."

On the same paper is written a recommendation to the like effect, signed by Robert Waln, dated at Frankford, 3d October, 1793.

On arriving in New York, they delivered their letters of introduction and soon found employment. In a short time, however, the yellow fever appeared in that city, and by its devastations, caused such alarm, that all who could, left the city.

One of the young men who boarded in the same house with him was taken with the fever; the mistress of the house was unwilling to remain, and on ascertaining that Isaac Procter would not leave the sick man, she showed him where to find articles which might be needed in the house, and took her departure. In the treatment of yellow fever at that time, warm drink only was allowed to the patient; this sufferer had been asking for cold water, which was strictly prohibited. "One evening, his medical attendant announced that he could not live longer than till morning. After the doctor's departure, the patient called Isaac Procter, and said, 'I heard every word the doctor said—I cannot live many hours—and now attend to my dying request: let me have as much cold water as I want.' 'Can thee drink a quart?' was asked. 'I will try!' was the answer. A quart mug was filled at the pump, and this, with nearly a tumblerful more, was disposed of. The pillows were then arranged, several blankets piled on, and the nurse sat down to watch the effect of the new prescription. In a short time the patient was sleeping, the first sleep for many nights. In the morning, the doctor came, not expecting to find him alive; he was still sleeping, the fever gone, and his bed wet

with perspiration. 'What have you been doing?' was asked. 'Giving him cold water,' was the reply. 'Well, you have saved his life; and if he does not die from prostration, may recover.' Light nourishment was ordered, which Isaac Procter had to prepare, and slowly strength was gained and health restored."

The fever still continuing in the city, and business prostrated, Isaac Procter sought employment in the country. The following winter he returned to New York, and was advised by John Murray and other friends to go to Baltimore and engage in the hardware business, his knowledge of tools and acquaintance with manufacturers in Manchester it was thought would favor such an undertaking. He accordingly ordered from England a stock needful for commencing business, and opened store on Market street, Baltimore, nearly opposite the Indian Queen Hotel, at the corner of Market and Hanover streets, a store which for many years was one of the most noted in the place. On leaving New York, a letter of introduction to Joseph Townsend, merchant in Baltimore, was given to him by Edmund Prior, from which we extract the following: "I have not known of any young man or Friend who has left us with whom Friends in general have parted with more affection and regret than with him. Thou wilt find him, I am persuaded, very deserving, and one who is possessed of such a manly and upright principle as will not allow him to take any little or mean advantage of any person whatever. His religious and guarded conduct has hitherto been very conspicuous with us, and I feel no apprehension that his leaving us will in any degree lessen it. The sympathy and friendly notice of his friends may strengthen and encourage him, in which I hope thine will not be wanting."

During the first year of business he became much discouraged by the difficulty of collecting his accounts; he was encouraged by his friends in New York to persevere, and to sell only for cash. Business prospering, he sent to England for his brother William and sister Sarah. His sister resided in the family of Edmund Prior, in New York, and William was placed at Burlington Boarding School, and subsequently was taken into the store of his brother.

On the 3d of Eleventh month, 1799, Isaac Procter was married to Rebecca Farquhar, at the Meeting-house at Fallsington, Pa., where he first met her six years previously. The first letter addressed to her on the subject of their union is in possession of the family, and

no one can read it without remarking its originality and candor, and the earnest desire of the writer that she whom he had chosen to share his portion in life should know all he could tell her regarding himself and prospects before making her decision.

Isaac Procter continued to reside in Baltimore to the time of his decease (by yellow fever) on the 7th day of Seventh month, 1820.

William Procter, Jr., (the junior being added to distinguish him from his uncle William) was the ninth and youngest child of Isaac and Rebecca Procter. He was born in the city of Baltimore on the 3d of Fifth month, 1817. When a little over three years of age he lost his father; unexpected claims were made upon the estate, which, although considered by the family unjust, were not resisted, and in consequence William was deprived of the liberal education which would have befitted a mind so well calculated to receive generous instruction, and would have given additional lustre to his mature years.

A companion of his boyhood* writes: "We were boys together from six to ten years of age at a Friends' school in Baltimore, taught by a lady of rare gifts and attainments. He was studious, gentle and companionable, and greatly beloved by his teachers and classmates. His powers of observation were very early developed, and, as a child, nothing escaped his notice; he would interest other boys in stones that he would pick up in the streets, or in general subjects that would arrest his own mind. Mineralogy was his especial delight and study at this early age; while other boys would spend their weekly holiday in play, he would start early, with a lunch in his pocket and a steel hammer in his hand, and spend the whole day with a companion in the 'quarries' north of the city, or in the 'deep cuts' of the iron district, or at the 'Bare Hills.' The boys at school were always interested in his specimens, and many a young mineralogist received his taste and first lessons from this young teacher. My mind is full of pleasant and affectionate memories of him, for he was one of the brightest, purest and best boys I ever knew."

The husband of his eldest sister being disqualified by sickness from attending to his business—that of a cooper—William was at an early age taken from school to look after the affairs of his sister, and in the cooper shop he acquired a knowledge of tools and a dexterity in the use of them which served him many a useful turn in after life.

Through an intimacy existing between his mother and Tabitha

* Francis T. King of Baltimore.

Turnpenny of Philadelphia he visited that city with her, and became acquainted with Joseph Turnpenny, who was then learning the drug business with the late Henry M. Zollickoffer at the corner of Sixth and Pine streets. Visiting the store with his friend, he found subjects congenial to his taste, and his mind was soon turned to a determination to make that business his choice for the occupation of life. In 1831, at the age of fourteen, he entered the store of Henry M. Zollickoffer as an apprentice; after being duly installed, and looking through the store at the various objects calculated to attract the attention of a novice, his youthful fancy was struck with the adaptation of a large pewter syringe as an hydraulic engine; picking up a syringe, he repaired to the street, accompanied by a fellow apprentice, similarly equipped, and, drawing their supply of ammunition from the gutter, they discharged the contents of their weapons at each other. William then returned to the store, laid away his syringe, and took from the shelf a copy of Henry's Chemistry, remarking, "This is just what I like." He was now fairly entered in the arena where the boy was to grow up to manhood and lay the foundation on which depended the superstructure of his after life. His father was taken from him when he was three years old, but the blessing of a loving mother, whose heart yearned toward her child, separated from her at a period in life when impressions are so readily made and with such difficulty effaced, attended him, and her words of council and advice were well heeded by a dutiful son. Soon after his apprenticeship, she writes to him—Seventh month 6th, 1831—"I must tell my dear William how rejoiced I was to receive his very nice letter, not a single blot or mistake in it; continue, my dear boy, to be thus particular in everything thee does (I mean to do everything well), and I have little doubt thee will succeed in giving satisfaction to all with whom thee may have to do. Let it be thy study to endeavor to please (thy employer) not only when in the store about thy every-day business, but in everything. There are many ways of gaining the affection of those we are with by being kind and obliging to all, and if thee can lend a hand of help in any way, no matter how small the act is, never be backward, but with cheerful alacrity be always ready; this will cost thee very little, and by a kind and courteous deportment in the store and out of it thou wilt gain the love and good will of all around thee. True politeness, my son, is a lovely accomplishment, but above all, never, never equivocate to screen thyself from censure, but if thou shouldst get into any difficulty be open and candid. Let honesty and integrity

be visible in all thy actions, and thus, my son, I think, thou wilt never want a friend in man, and thou wilt have a friend in thy Heavenly Father, who can, and will, if thou love Him as thou ought, do more for thee than all the world beside. Therefore, my dear boy, 'seek him now in the days of thy youth;' it is never too early to begin. There is another point on which I wish to remark—that of keeping, everything thee may ever know relative to thy master's business entirely within thy own breast, sometimes by tattling or telling little matters to others it has often been a cause of a great deal of mischief and uneasiness, if not unhappiness; therefore thou wilt be guarded on this subject, never trust even thy own dear friends with anything relative to thy employer's business which thou might suppose he would not be willing for everybody to know; and always stand open to reproof, I have no doubt, if necessary, it will be administered in meekness and in love."

The letter from which we have made this abstract, so replete with wisdom, is found among the letters which he preserved of that period. Those who have been favored with an intimate acquaintance with William Procter, Jr., can testify that the goodly counsels of a Christian mother were received into good ground, and brought forth goodly fruit.

From 1831 to 1836, he was quietly pursuing his duties as an apprentice, residing in the family of Henry M. Zollickoffer, his employer, endearing himself to all by his cheerfulness, brightness and alacrity in all his duties. In 1836, he commenced a diary. In one of the early entries of this year, we find he records the death of his mother, at the age of sixty-three years. He says, "I have indeed lost another and only parent, who has watched over me with truly parental care and tenderness. All my hopes of repaying her unceasing kindness are now at an end, and all my dreams of pleasure about the days when I should become a corner-stone to her, have vanished forever."

In March, 1837, he passed a successful examination as a candidate for the diploma of the Philadelphia College of Pharmacy. The subject of his thesis was "*Lobelia Inflata*," a paper of great merit, in which he demonstrates the presence of an alkaloid, lobelina, on which the medical activity of the plant depends.

In May, 1840, he was elected a resident member of the College, and from that period we find the volumes of the *American Journal*

of *Pharmacy* containing many contributions from his pen ; of these, we shall have occasion to speak, in reviewing his life as an author and investigator.

Continuing unostentatiously in his position at Sixth and Pine streets, we find his mind keenly sensible to the deficiencies of his early education, and striving, by a diligent course of study and reading, to acquire a knowledge of the subjects kindred to his profession. His habit was to rise early, and devote the morning hours to his self-culture. Turner's *Chemistry*, Ure's *Dictionary* and Dalton's *Chemistry* appear to have been text-books which he carefully perused. His custom was to keep notes of his reading, and indicate by signs whether a particular subject had been pursued to the satisfaction of his mind, or whether farther examination was desirable. His reading was attended with experiments in pneumatic chemistry, and an examination of the properties of the elementary substances. Electricity, galvanism and electro-magnetism were attractive branches to him, at the time when Davy and Faraday were opening the portals which lead to a knowledge of these once mysterious agents of nature. He attended lectures given by Drs. Hare, Mitchell and Bache, in the winter of 1840, and expressed his gratification with Dr. Hare's experiments on electricity, and the solidification of carbonic acid, by Dr. Mitchell. He writes in his diary, "I obtained a piece of solid carbonic acid, and, returning home, repeated Dr. Mitchell's experiments on freezing mercury, my thermometer, after falling to -40° , suddenly contracted, and was frozen." He also constructed an electro-magnet, and was pleased to find it capable of supporting a one-fourth pound weight. A table blowpipe was also a piece of his mechanism, to enable him to construct apparatus of glass. Alluding to the lectures of Dr. Bache, he records, "Dr. Bache deserves the greatest credit for the considerate manner in which he discharges his duty to his students."

Nine years had now passed since he entered the store as an apprentice, and he was in his twenty-third year ; an offer made to him to enter into a chemical works in Baltimore was declined, and his engagement with Henry M. Zollickoffer renewed. His leisure time was now divided between literary and scientific pursuits. His vacations, in occasional journeys for recreation and improvement. One notebook gives an account of a trip to Washington, and the country bordering the upper Potomac ; another was to Ohio, returning by Niagara Falls ; another by sea to Boston.

In 1841, he accepted the position as secretary to the committee on revision of the Pharmacopœia, and made numerous experiments for the committee; chief of which were on the production of ether, and Hoffman's anodyne. His first experiments on ether, he records as failures; but says, "I have got on the track to obtain a good article of Hoffman's anodyne."

The years 1842 and 1843, continued his engagement at Sixth and Pine streets. His leisure hours were improved by continuing his study of chemistry, taking up also botany, and learning the French language. General literature received considerable attention from him during this period. The Life of Washington, Johnson's Life, Alison's History of Europe, and moral philosophy, are recorded as forming part of his reading. In 1842, he made a journey through central Pennsylvania to Pittsburgh, continuing westward as far as Cleveland. He returned by the way of the lakes to Niagara, then through the lake district of New York, and home, by the way of Elmira and Williamsport.

In February, 1844, he purchased the property at the southwest corner of Ninth and Lombard streets, and commenced making alterations to render it suitable for a store.

We cannot do better than give his own recorded words at this important period, when about to embark in life on his own account: "I am about to leave Sixth and Pine streets, after so long a residence. What singular events occur! Little did such a prospect appear probable some years ago. Steadiness and calmness of mind, how important to the proper appreciation of life! This I daily become more convinced of, and find cause to note the want of it in my own case. Reflection steadily and calmly directed to moral and intellectual improvement, with all the rigor of justice, and all the affection of mercy, how few can truly govern themselves! I have made little progress in this all-important power, and have too frequent cause to regret acts of indiscretion and weakness."

On the 12th of May, 1844, he opened store, and was behind his own counter. Long accustomed to the routine of an old-established business, the uncertainty of success in his new position, and the trials which assail the mind while waiting for some indication of prosperity, he did not escape. Three months after opening his store, he writes, "It has been a time of singular discomfort to me, the anxiety incident to opening a new store, and the much time unemployed ha,

been very burdensome. I need more faith and confidence in the course of events."

A circular issued on opening his store, bearing date Fifth month 13th, 1844, is before us; it says, "in reference to that important branch of the business, embracing the compounding of medicines and physicians' prescriptions, he believes that a regular education at the Philadelphia College of Pharmacy, and twelve years' experience in one of the first establishments of this city, will enable him to give satisfaction." The names of Drs. Wood, Bache, Jackson, Mütter, Hartshorne, Meigs, Harris, Rutter, and Henry M. Zollickoffer are given as references.

The neighborhood of Ninth and Lombard streets, at that time, would not have presented many attractive prospects to the generality of beginners, so well qualified as William Procter, Jr., for the higher branches of pharmacy. The square on the south side of Pine street, between Eighth and Ninth streets, was then an open lot. South street was the boundary of the city proper, and beyond this limit, for a long time, the acts of unrestrained "rings" of lawless associations, presented but little inducement to a settlement in that part of the city of the well-to do citizen.

Quietly, however, William Procter, Jr., pursued his course, attending to his own business, and abiding his time. The unemployed time he speaks of, was far from being *misspent*; his active habits and inquiring mind were not content with waiting for the routine of counterwork. His attention was directed to the improvement of many of the formulæ of the Pharmacopœia, devising new preparations, and original investigation on many subjects, where more light was wanting. As time passed on, the vacant lot was occupied by first-class residences, on Pine and on Ninth streets. A consolidated police force, under the vigorous rule of Marshall Keyser, restored order in the districts, and the business at Ninth and Lombard streets began to assume proportions more befitting to the capacity of the proprietor of the store.

A widowed sister lived with him as a companion and housekeeper, and her daughter, in the early years of womanhood, beloved by all who knew her, added an attraction to the little circle, which will long be remembered by those who had familiar intercourse with the family at that time. The clouds which obscured the horizon of his field of action had dispersed, and left him no longer to doubt the

progress of the future. His spirits were buoyant, and his energy seemed almost beyond the capacity of his physical power, which, at that period, caused apprehension to many of his friends.

Closely occupied during the day in the affairs of his business, he was always ready in the evenings to enjoy the society of his friends. Practical in his habits of conversation, a close and correct observer, well informed in all the branches of science which were allied to his profession, he was a pleasant and profitable companion. Naturally retiring, and somewhat reticent with strangers, he appeared to them grave and not susceptible to lively emotions; but to those who know where lay the secret spring which unlocked this exterior, the inner man was found with all the freshness of boyhood, and, with almost child-like confidence, his real life was spread before them.

There was no subject which enlisted his attention so much as the advancement of Pharmacy. The minds of many of the members of the College of Pharmacy had long foreshadowed the time when lectures on this subject would be added to the curriculum of the College. In 1845, the subject assumed a definite shape, by a memorial, which was presented at a meeting of the College, held in September of that year, signed by William Procter, Jr., A. J. Duhamel and Edward Parrish. The memorial was accompanied by the following resolution, "that a committee of nine be appointed to consider the propriety of creating a new professorship, the occupant of which should be called the professor of theoretical and practical pharmacy."

After an *animated* discussion (as the minutes inform), the resolution was adopted, Daniel B. Smith, then President of the College, acting as chairman of the committee.

At a special meeting of the College, held in April, 1846, the committee made an able and exhaustive report on the subject, and it was resolved "that the report of the committee be referred to the Board of Trustees, with instructions to take the necessary measures for establishing the new professorship." A special meeting of the Board of Trustees was called in June, and William Procter, Jr., was unanimously elected Professor of Pharmacy.

In October, 1847, he delivered his Introductory Address to the class, which was published by request of the College. This address will be found in Vol. XIX of the *American Journal of Pharmacy*, and will well repay any student of pharmacy for a careful perusal of it. The following extract which we make has not lost any of the

timely words of warning then uttered. He says : "Some individuals enter the lists of pharmacy under delusive impressions, or are placed there by guardians who are equally misguided, illy prepared by education or endowments for so responsible a vocation. It is a sad spectacle to behold such giving their early years and youthful energies to a profession not suited to their tastes or inclinations—pursuing it, perhaps, until, on the threshold of manhood (when), they find themselves about to be cast upon the ocean of society in a vessel with whose qualities and powers they are too slightly familiar to enable them to cope with the difficulties which assail them. Many who are unsuccessful as apothecaries might have arisen to respectability and competence in other pursuits more harmonious with their inclinations or natural gifts. It too often happens with these that, repelled by ill success from their legitimate calling, they are induced to bow before the image of empiricism in the hope of a golden reward, and prostitute that knowledge that they never should have acquired to the invention of nostrums, and forcing them into notice."

At the commencement of the course of Lectures on Pharmacy, there was some misgiving, in the minds of some students, whether they would find an equivalent for their time, and the money-cost of the course. Such, however, soon found that there was a science and method in the dull routine of even the mortar and the spatula which they had not dreamed of, and, by the time the course had ended, they discovered a necessity for the exercise of mental as well as manual dexterity behind the counter, if they purposed encountering an examination on their fitness to prepare and dispense pharmaceutical products.

In the preparation of his lectures no amount of labor was too great to deter him from bringing before his class practical illustrations of his subjects; oral instruction he deemed very imperfect in his branch, unaccompanied by full demonstrations. This necessitated the expenditure of time and personal exertion, which few could realize who were not conversant with his habits of thoroughness and conscientiousness in the discharge of his duty as a teacher. During several years of his professorship his health was not strong, but his active mind rose above his bodily infirmities, and made the physical subservient to the determined will which animated him. While aware of the necessity of taking care of himself, the severities of winter rarely prevented his being found at his post at the appointed time. He commanded the respect, and, we may say, the affections of his class,

and his opinions had a weight of authority with them which has rarely been disturbed by after experience.

In 1846, William Procter, Jr., was associated with Prof. Joseph Carson as co-editor of the *American Journal of Pharmacy*; for two years previous he had assisted Prof. Carson in its editorial management. In 1850, Prof. Carson resigned from his position, and Prof. Procter assumed the sole editorial charge. In 1853 the Journal was enlarged by the issue of six numbers annually in place of four. In 1871 the issue of the Journal was made monthly. Prof. Procter inaugurated the monthly issue, and after editing the April number resigned his position, and was succeeded by Prof. John M. Maisch. He had contemplated a relinquishment of his editorial duties for some time, and in a written communication to the College, some months previously, had advocated a monthly issue of the *Journal*, and requested to be relieved from the editorship as early as the College could find a suitable successor.

For twenty years the *Journal* had been under his management in its editorial department, and how successfully that management was conducted, the volumes issued during that period are the best testimony. The original matter from his pen, and his judicious selections, gave to it a value and standing among American pharmacists, and made it the most complete history extant of the progress of pharmaceutical science in the United States. As an editor, he was just to all contributors, pleasant in criticism, never indulging in the personal or sarcastic, ever ready to expose fraud and empiricism, loving truth and sometimes proclaiming it when it was a disagreeable duty. After resigning the editorship, his time was so much occupied by his business that his name does not appear as a contributor direct to the *Journal*; in April, 1871, we have an article from his pen "On Pharmaceutical Titles"—the last of the long series. The General Index of the *Journal* exhibits seven columns, numbering some 550 items, under his name, exclusive of extracts and editorials. We think it may be safely said, without disparagement to any of his predecessors in the editorial management of the *Journal*, that the College was fortunate in placing the *Journal* in his hands. No man of the time could have been placed on the outlook commanding the horizon of pharmaceutical literature, whose heart was more thoroughly engaged in the work, and who was gifted with quicker perceptions, or better judgment. His name will ever be associated with the progress of phar-

macy in the United States, and the twenty volumes of the *Journal* which bear his name as editor, will remain a monument to his genius and zeal.

In October, 1849, Wm. Procter, Jr., was married, at Mount Holly N. J., to Margaretta, daughter of Amos and Elizabeth Bullock.

During this year was issued from the press his American edition of Mohr and Redwood's *Practical Pharmacy*. This voluminous work was enriched by additions from his own pen. The work never went through a second edition, attributed in a great measure to the cost of proper illustration, which the publishers were not willing to incur, and without which much of the value of the work would have been lost. In October, 1851, there was assembled in the City of New York a convention of pharmacutists, in pursuance of a call made by the New York College of Pharmacy, for the purpose of considering the law relating to the inspection of drugs at the Custom House, and to fix upon some standard which would enable inspectors to act with uniformity and discernment. The Philadelphia College of Pharmacy was represented by Chas. Ellis, Wm. Procter, Jr., and Alfred B. Taylor. This convention was impressed with the advantages which would be derived by the pharmacists of the United States from an association national in character, where, by personal intercourse and exchange of experience, the practice of pharmacy throughout our widely extended country would be more harmonized and the general standard of education elevated. It was therefore "resolved that a convention be called, consisting of three delegates from each incorporated and unincorporated pharmaceutical society, to meet in Philadelphia on the first Wednesday in October, 1852."

This convention assembled in the old College building, in Zane street (now Filbert street), and here was inaugurated the American Pharmaceutical Association, the President of the College, Daniel B. Smith, acting as its first presiding officer. From the time of its inception William Procter, Jr., enlisted all his activity in promoting its welfare, and his name will be found in all its Proceedings down to the meeting in Richmond, Va., in 1873. In 1852 he was a member of its first executive committee; in 1853 was chairman of a committee appointed to prepare an address to the pharmacutists of the United States on the subject of pharmaceutical instruction.

In 1853 he was a member of the committee appointed to prepare a paper on the standard of quality for drugs, together with appro-

priate tests for detecting adulteration. This committee was continued until the year 1856.

In 1856 he was chairman of the first committee on the progress of pharmacy, all previous reports on this subject having been made by him in his capacity of corresponding secretary. In the same year he was appointed chairman of a committee to report a syllabus of a course of study appropriate to students of pharmacy. This committee was continued until the year 1858, when he made the report published in the volume of the Proceedings of the Association of that year. He was corresponding secretary from 1852 to 1857, first vice-president in 1859-60, and was elected president at the session of the Association which convened in Philadelphia in 1862. In 1866 he was appointed one of the delegates to represent the Association at the international Pharmaceutical Congress to assemble in Paris in the following year.

He was absent from the annual meetings of the Association but once (while in Europe), and contributed largely to the interest of its Proceedings by answers to queries which he had accepted, and by his volunteer papers.

Prof. Procter had a taste for rural occupations, and in 1855 he purchased property at Mt. Holly, with a view to afford him scope for the enjoyment of this taste, as well as for the recreation and change which his health demanded. Additions were made from time to time to the original purchase, until he had a small farm of about sixty acres under his control. A cottage on the place afforded himself and family a summer retreat, and the cultivation of choice fruit engaged his personal attention. Many happy days were here passed; escaped from the routine of shop and desk, the exhilaration of out-door exercise seemed to infuse renewed activity of mind, and to call back the hilarity of early years, before the sterner realities of life had drawn a curtain between the man and the exterior world.

In 1859 he lost his wife, and in 1864 was married to Catharine, daughter of Robert and Sally Parry.

In 1866 he resigned the chair of Pharmacy, and was succeeded by Prof. J. M. Maisch; an interchange of professorships was afterwards effected between Profs. Maisch and Parrish, Prof. Parrish taking the chair of Pharmacy and Prof. Maisch that of Materia Medica.

Many years of close attention to his varied and assiduous duties rendered a season of relaxation and change necessary. In the sum-

mer of 1867 he determined to take a trip to Europe. Leaving New York by steamer in April, he landed at Queenstown, and after a hasty run through Ireland he crossed over to England, and proceeded to London. In the fortieth volume of the *American Journal of Pharmacy* is published his notes of travel, containing much interesting information to the intelligent pharmacist; this narrative leaves him at Rome. It was his intention to have continued it, as many pages of manuscript show; but his natural diffidence has precluded the readers of the *Journal* from many interesting observations by an observing traveller. The *practical* did not alone engross his attention; he had an appreciation for natural scenery, and a mind which was moved by the historical associations of the classic lands through which he journeyed. Of Rome he writes: "How useless to attempt to tell its story, to depict even what the transient traveller, the week's sojourner has seen and witnessed of this grand central point of the nations, this stage on which the shifting scenes of more than a score of centuries have been enacted, leaving their marks indelibly impressed. To an American, where all is of yesterday, these foot-prints of national existence, extending unbroken back to the night of time, produce a profound impression, and afford an ample subject for meditation, but not for description."

Leaving Rome, he proceeded by way of Florence and Padua to Venice. Of Padua he writes, "Its university and medical school are yet celebrated; we had no opportunity to ascertain whether the apothecary who served Romeo has a representative there, but we doubt not such is the case. We have seen several in Italy whose shops presented a 'beggarly' account of empty boxes." From Venice we follow him into Switzerland and to many of the cities of Germany, as far eastward as Berlin and Dresden; thence into Holland and Belgium. From Brussels he crossed over to England and visited Manchester, Liverpool, Glasgow, Edinburgh and the Scottish Highlands. Returning to London, he again crossed the channel to attend the Pharmaceutical Congress which assembled in Paris, to which he was a delegate from the American Pharmaceutical Association. At the close of the Congress he proceeded to Liverpool and sailed for home in September.

The business at Ninth and Lombard streets increased with the progress of the city in that direction, and rendered necessary more ample accommodations. The first enlargement of his store was made

in the winter of 1861, brought about at that time by an accident. He was distilling ether from a preparation, and having his attention called away, the water in the condensing apparatus became warm and allowed ether vapor to escape into the store; mingling with the close atmosphere of the room, an explosive mixture was in time formed and ignited by the gas lamp under the still. The explosion forced the glass of the bulk windows into the street, but did no injury to the interior arrangements of the store, or to those engaged in it. Again, in 1870, more room was found necessary, and the whole of the remaining portion of the first floor was thrown into the store. In making these alterations, convenience for dispensing and proper arrangements for storage of articles was the first consideration, but little attention was given to the modern drawing-room style of some of our pharmaceutical establishments.

In 1847, Quevenne's Iron was introduced and becoming popular, Mr. Procter devoted considerable attention to its manufacture, and produced an article which gained a high reputation in the market. The manufacture having been taken up by others possessing more room and greater conveniences, he, after a few years, abandoned it.

When pepsin came into use, the varying qualities in the market induced him to make experiments on its production; he devoted considerable attention to it, and, during the last year of his life, he was quite extensively engaged in its manufacture.

The subject of pepsin closed the last lecture which he delivered to the class.

In 1872 the Chair of Pharmacy became vacant by occasion of the death of Prof. Edward Parrish. The season for the opening of the course of lectures was so near at hand that the Trustees of the College turned their minds instinctively towards William Procter, Jr. as the man to relieve them from embarrassment. The Trustees were well aware that he had an earnest desire for retirement, and canvassed well the field for one who could, at so short a notice, take up the course on practical pharmacy. At the request of the Board of Trustees of the College he consented to fill the chair, and delivered the course of lectures in the winter of 1872-73. It was known to his friends that the position was intended by him to be but temporary, and that he contemplated retiring at the close of the following session. The lectures for 1873-74 progressed as far as February 9th, and but a few more remained to finish up the work which he intended should

terminate his professorship. On the evening of February 9th he delivered his usual lecture, and on returning home expressed the great satisfaction which the attention of the class had given him. At a late hour he retired in apparent usual health; shortly after falling asleep, a disturbance in respiration aroused the attention of members of the family and before medical assistance could be called, life had ceased.

As a veteran soldier steps forward to close the ranks where the shaft of death has struck, so he was not found wanting in his devotion to the cause which had enlisted the energies of his life, and as a veteran he has fallen with all his armor on.

He died aged 56 years and 9 months, leaving a widow, and two children by his first wife. May they perpetuate the qualities which made their father's name respected by all who knew him.

In person, William Procter, Jr., was of medium stature, with dark hair and black eyes, bespeaking an active, earnest mind. For many years after he commenced business his health was delicate and fears were entertained that he labored under pulmonary difficulties, such, however, proved not to have been the case, and the symptoms were probably connected with the incipient stages of disease of the heart, which finally terminated his life. Up to the time of his European tour he kept his face cleanly shaved, but while absent he allowed his whiskers and moustache to grow, and continued that custom during the remainder of his life. Those who knew him with a smooth face would hardly recognize the William Procter, Jr., of after years. His motions were quick and evidenced the energy with which he was endowed. In manner he was unostentatious and retiring, but when he felt himself known and understood he was genial and playful. He was an observer rather than a talker, but possessed the ability of expressing himself in clear and pleasant language. As a lecturer he chose the didactic to the exclusion of the ornate style of speaking. The jewels of his character were integrity, sincerity and a just sense of duty to his fellows. Educated in the religious belief of the Society of Friends, and holding their views during his life, he made no profession of sectarianism, but had an extended charity for the views of those who differed from him. Although he rarely alluded to religious subjects, those possessing his confidence were aware that the Bible had not been overlooked among his books. He was happy in the use of his pen, and his essays are marked by clearness of expres-

sion and a carefulness of detail, which leave no room to doubt the meaning of the writer. His investigations evidence a faithfulness in research and a completeness which has made his name an authority.

William Procter, Jr., became a member of the Philadelphia College of Pharmacy in 1840; in the succeeding year he was elected to its Board of Trustees, and held that position during his life. In 1855 he was made Corresponding Secretary of the College, and continued to serve as such for twelve years. In 1867 he was elected first Vice-President of the College. His interest in the affairs of the College continued unabated during the thirty years of his connection with it; so closely was he identified with its progress, that its history during that period is almost a narrative of his life.

He served on all committees appointed for the decennial revision of the Pharmacopœia for the past thirty years, and his services were engaged in assisting Doctors Wood and Bache, in several of the later editions of the United States Dispensatory.

A complete review of the published essays of Prof. Procter would occupy too much space for this memoir, and we can only allude to a few of them. His thesis in 1837 on *Lobelia inflata*, in which he demonstrates the presence in the plant of an alkaloid, describes the salts formed by union of the principal acids with the alkaloid, and proposed the name lobelina for the active principle.

Three years previous, S. Colhoun, M. D., Professor of Materia Medica in Jefferson Medical College, Philadelphia, published in the *American Journal of Pharmacy*, vol. V, the investigation of an acidified extract from *Lobelia*, which foreshadowed the presence of an alkaloid, but he did not succeed in isolating the principle. Prof. Procter was aware of Doctor Colhoun's investigation, and refers to it in his supplementary paper, published in 1841—a "casual omission," as he states, in not having done so in his thesis. In November, 1850, Mr. William Bastick read a paper before the Pharmaceutical Society of Great Britain on *Lobelia inflata*. He refers to Doctor Colhoun's paper, but evidently was not aware of Prof. Procter's researches in 1837 and 1841. Mr. Bastick isolated the alkaloid, and describes it, and his name is associated in the books with its discovery. In January, 1851, Prof. Procter writes to the Editor of the *Pharmaceutical Journal*, London, as follows: "For some reason, these (my) essays appear to have been entirely overlooked by the press and writers on your side of the Atlantic, and now that the drug

is attracting the attention of your medical men, its chemical relations are exciting the curiosity of your pharmacutists. I should not have taken the trouble to bring their existence to your notice, had I not observed the paper of Mr. Bastick in your Journal for December, in which he states his ignorance of any previous researches having the same tendency as his own."

The *Pharmaceutical Journal* then published Prof. Procter's essay, placing him thirteen years in advance of Mr. Bastick as the discoverer of lobelina.

In the same year with the publication of his thesis, we have "Remarks on an oil obtained by distillation from wild cherry bark, and evidences of its similarity to oil of bitter almonds."

In 1838, a paper "Demonstrating the existence of amygdalin in several species of the genera *Prunus* and *Amygdalus*."

In 1839, "Observations on dextrin and diastase," and "On *Lobelia cardinalis*," showing the presence in that plant of an alkaloid differing in some respects from the alkaloid found in *Lobelia inflata*.

In 1840, a paper "On the power of saccharine substances in protecting from decomposition solution of protiodide of iron."

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In 1842, "Observations on the volatile oil of *Gaultheria procumbens*, proving it to be a hydracid analogous to salicylous acid."

A year later, M. August Cahours took up the same subject, and arrived at the same results by a proximate analysis of the oil, but in his paper, published in the *Journal de Pharmacie et de Chimie*, March, 1843, he makes no allusion to Mr. Procter's previous publication, leaving us uncertain whether he had seen Mr. Procter's paper, or whether the investigation made by him was coincident with that of Mr. Procter.

In 1843, "On the volatile oil of *Betula lenta* (sweet birch), and on gaultherin"—a substance playing a part similar to amygdalin—and which, by its decomposition, yields an oil identical with oil of gaultheria.

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preparation, and the advantages they offer to the medical practitioner."

In 1851, among numerous contributions, we have an essay "On the botanical and chemical character of sassy bark (the doom plant), of Western Africa."

In 1852, a continuation of the essay on sassy bark, and "Observations on the volatility and solubility of cantharidin, in view of an eligible pharmaceutical treatment of Spanish flies."

In 1853, fluid extracts began to attract attention, and in this and the succeeding year he contributed several papers on that subject; also, one "On the pharmacy of the phosphates."

In 1858, "An essay on the hypophosphites."

In 1859, "On polygalic acid," and "On the existence of nicotina in green tobacco." In the same year, he read before the American Pharmaceutical Association, in Boston, an elaborate essay on fluid extracts, suggesting formulæ for their preparation, and presented specimens of over thirty fluid extracts prepared according to his suggested formula.

For this essay a copy of Pereira's *Materia Medica* was voted to him by the Association, as a testimony of its appreciation of his services. This paper may justly be considered as forming the basis on which many fluid extracts were admitted into the *Pharmacopœia*.

In 1866, we have an essay "On *Liquidambar styraciflua* and its balsamic resin," "showing the principle contained in the resin to be cinnamic acid."

The papers contributed by Prof. Procter to the American Pharmaceutical Association are numerous, and marked by his usual carefulness and accuracy of investigation. Of these, his essay "On Ergot" (suggesting the use of acetic acid in its preparation), "On aconite root," "Atropia from American belladonna," "On extract of *Cannabis Indica*," "On *Sassafras officinale*," may be mentioned as not included in the preceding review.

In the Proceedings of the Association for 1873 will be found several able papers from his pen. One, "On suggestions to beginners in pharmacy," should receive attention from all of that class who purpose following in the path which he has trodden before them.

In concluding the memoir of Prof. Procter there is brought to our minds one of his last official acts before this College: In September 1873, as Chairman of the Committee on Deceased Members, he read

from this desk a memoir of our late associate, Elias Durand; a year has passed! and upon the remaining members of that committee devolves the duty of presenting a memoir of *his* life.

We need only to sketch the outlines, and the recollections of each one can complete the picture. His name is yet fresh upon the minutes of our meetings, and as it is read our eyes turn to his accustomed place; but while

*His "written words we linger o'er,
Yet in the sun he casts no shade;
No voice is heard, no sound is made,
No step is on the conscious floor."*

As the deepening shades of night invited to repose after the labors of the day he lay down to rest, and the last page of his life's history was closed!

To us is left the remembrance of his earnest, active life, ambitious, not for place or preferment, but for the advancement of the purposes for which this College was founded—that knowledge which elevates the profession and the individual, and confers a lasting benefit upon society.

Varieties.

*The Franklin Institute Exhibition,**—The venerable Franklin Institute of this city bears a relation towards technology, which is in many respects analogous to that of our own College toward pharmacy. Both institutions have been in existence more than half a century, each laboring zealously within its respective field. The chief mission of the Franklin Institute has been the instruction of those who labor with head or hand in industrial pursuits; that of our own College is too well known to need comment. Both, again, occupy parallel positions in bringing together those who pursue similar avocations, and in promoting friendly intercourse among them, so that they can freely interchange their ideas for mutual profit. The distinctly avowed purpose of each institution is the higher education of earnest workers, so that the knowledge of each may become the common property of all. United thus by a bond of goodwill with all who labor faithfully for the diffusion and advancement of modern enlightened ideas, it eminently behooves us to take cognizance of the magnificent exhibition, which has for several weeks past been visited and admired by so many thousands of our best citizens.

* Read at the Pharmaceutical Meeting, October 20th.

It appears somewhat strange that, although industrial exhibitions were in this country originated by the Franklin Institute, our city has not for a number of years been the scene of one of these. It is stated that it was not previously possible to obtain suitable buildings in accessible localities, the present display being held in the old freight depot of the Pennsylvania Railroad Company, which has been but recently vacated.

Without wishing in the least to disparage the merits of the numerous similar exhibitions, which have recently been held, we are of necessity forced to concede the average superiority of the goods displayed in our city. A large amount of space was taken up in the Western exposition by objects that are so common place in their nature, that they failed to excite either admiration or curiosity, their undeserved prominence being evidently only a trade advertisement and nothing beyond. At the present Exhibition a vast majority of the goods possess intrinsic merit, either on account of their novelty, superiority or rarity. Another feature, which is highly appreciated by visitors, is the great beauty manifested in the artistic arrangement of many otherwise incongruous articles. In the evening, the building is brilliantly illuminated by twenty-eight hundred gas lights, many of them issuing from the magnificent chandeliers contributed by our renowned Philadelphia manufacturers.

About one-half of the entire space is taken up by machinery of the most varied kinds, most of it being in active operation. The display in this department is stated by competent authorities as being not only the most extensive, but also, by far the finest that has ever yet been exhibited on this continent.

Without attempting to enumerate all the multitudinous articles of pharmaceutical interest, we will merely endeavor to present an epitome of those characterized by prominent features.

Powers & Weightman present the most elaborate display of their manufactures which we have so far examined. Considerable labor and patience has evidently been bestowed on the preparation and arrangement of these specimens. About \$2000 worth of sulphate of morphia is exhibited in large blocks, which, when illuminated by the reflection of McAllister's calcium light, present an appearance of snowy whiteness and dazzling brilliancy. The sulphates of cinchonidia and quinidia, which are beginning to be largely consumed in the South as substitutes for quinia, are exhibited in enormous bell glasses. The quinidia consists entirely of very beautiful long, silky crystals, which are frequently mistaken by visitors for asbestos. Citric and tartaric acids made by the firm are shown in unusually large and handsome crystals. Gallic acid is modelled into the shape of Cleopatra's Needle, forming a huge obelisk. Large masses of copper sulphate and of alum are effectively disposed. Silver nitrate is exhibited in plates of remarkable size. The cadmium iodide is peculiarly beautiful, resembling in lustre the mother-of-pearl, or nacreous layer of certain shells. Two large vessels of ammonium nitrate have been specially admired; some of these numerous prismatic crystals measure fully fifteen to sixteen inches in length, while they are barely three to five lines in thickness.

Rosengarten & Sons also exhibited an extensive assortment of their chemicals.

Henry Bower makes an elegant and effective display of the rather limited number of his productions. His renowned glycerin, of course, occupies a prominent position. A very large mass of ferrocyanide of potassium in crystals is beautifully framed and draped in an artistic fashion. The ferridcyanide is exhibited in handsome pyramids. Stearic acid welcomes us as a life-size bust of Franklin, and also as a double representation of the goddess of beauty, of her that was born of the foam of the sea, Venus Anadyomene. These statues will bear scrutiny as works of art, being highly finished and polished so that they resemble the finest Carrara marble.

The Pennsylvania Salt Manufacturing Co. makes a very fine display of its chemicals, particularly of alum, prepared from kryolite in vast quantities. An imitation iceberg, illuminated in the interior, has been constructed out of about three tons of this beautiful article. These large transparent crystals have a peculiar greenish tint, like that of ocean waves. No great stretch of the imagination is necessary to associate this production of "Greenland's icy mountain" with the fairy grottoes of which the northern skalds were accustomed to chant in their ancient sagas.

Natrona porous alum, which is stated to be pure aluminum sulphate, is also shown; the company claims numerous advantages for this as a sizing agent in paper making. Fine specimens of native kryolite attract much attention. Caustic soda, iron sulphate, sodium carbonate and bicarbonate figure among their products. The natrona sodium bicarbonate has the reputation of excelling the best Newcastle in purity. The Greenwich brand is made by the company, in this city, from salt. As the company has quite recently commenced putting this up in small packages for family use, we regret to notice that no attempt has been made to conform to the nomenclature of the present day, but that, on the contrary, incorrect and inaccurate names are retained. It would have been quite in harmony with the spirit of enterprise so frequently manifested by this great concern to give the correct, modern appellation, and then to let the superannuated synonyms follow.

Kurlbaum & Co. make a fine show of camphor, in circular disks, refined by themselves. They exhibit, also, a number of ethers, the oils of camphor, cloves and allspice, with a line of mercurial preparations, among which calomel in very fine crystals is conspicuous.

William Gulager exhibits white wax, litharge, refined saltpetre and Hartman, Laist & Co.'s glycerin.

The Philadelphia Quartz Co. offer a great variety of preparations of silicate of soda, in the form of crystals, powder and jelly. It is really surprising to note the number and variety of technical applications of this interesting substance. The labels of the different jars inform us that one preparation is for calico-printing, another for making concrete stone, another for refining sorghum, still another for saturating boxes and packages to prevent the absorption of oil, and yet another for improving the manufacture of soap. Besides these we notice a solid form recommended for washing machinery-waste, with samples of the so-called waste before and after purification. Judging from these specimens, the silicate is certainly very efficacious in its action. We notice also silicate of potash in solution, formerly used for making a patent artificial stone;

tallow and rosin laundry-soaps, containing respectively twenty-two and a half and twenty-five per cent. of silicate of soda.

Rihn & Co. and L. Martin & Co. display varieties of lampblack.

The products of the Gap Nickel Mine, of Lancaster County, are exhibited by the American Nickel Works. We observed some very beautiful specimens of nickel and cobalt plating, together with nickel ore and pure cobalt and pure nickel, and a number of rare and handsome salts of both these metals.

Hance Bros. & White have made a tasteful and elaborate display of their varied manufactures. Among these multitudinous productions we noticed nitrite of amyl, and an imitation of the famous cordial of the monks, Elixir Chartreuse.

Sugar-coated pills, in the well-known vast variety, are exhibited by Bullock & Crenshaw and Wm. R. Warner & Co.; compressed pills, by John Wyeth & Bro.; gelatine-coated pills, by McKesson & Robbins.

Keasbey, Mattison & Rutter exhibit an assortment of their granular effervescent salts, together with saccharated pepsin and pancreatin.

Mellor & Rittenhouse offer American licorice, in rolls of various sizes and in mass. The latter, in particular, seems to meet with general approbation, if we may judge from the rapidity with which it evaporates. Also, bay rum, court-plaster, medical and cachou lozenges.

John M. Sharpless & Co. exhibit fine specimens of various dye-woods, such as hypernic, Campeachy, camwood, barwood and fustic; also, red and yellow prussiate of potash, bluestone and extract of logwood.

Harrison Bros. & Co. have made a very extensive and praiseworthy display of their paints and chemicals. Their large jars of brilliant pigments are more particularly attractive on account of being carefully graded from light to darker shades, so as to present a regular chromatic scale. As far as possible, each color has a separate shelf assigned to it, thus producing a harmonious impression. We are under obligations to the accomplished and gentlemanly representative of the house, who kindly explained to us the composition of many of their paints. The numerous substitutes for Paris green, sold under an infinite variety of names, and by many houses claimed to be entirely free from poison, were stated to be mixtures of chrome yellow with Prussian blue or ultramarine, in varying proportions. The extra light shade of chrome yellow known as canary, is obtained by an admixture of sulphate of lead. Colors for paper-staining and others for lithographic purposes are also shown in great variety. A large bottle of wood alcohol is on exhibition, this being here chiefly consumed in the manufacture of shellac varnish. Alum and pyrolignite or brown sugar of lead, used largely by morocco dressers, were effectively displayed. We were particularly pleased with the exhibition of specimens illustrating the manufacture of white lead in its various stages. The pure metal is shown after being cast by machinery into the shape of perforated discs, technically called buckles, and, also, after it has been corroded by dilute acetic acid. This firm packs the corroding pots in tan, having found that material to be preferable to manure.

Paints are likewise exhibited by John Lucas & Co. and Wetherill & Bro.

Our cosmolin friends have been lavish in their disbursements for huge glass

jars and glittering lables for their products. Samples of cosmolin are freely distributed to visitors.

Morehouse, Rockefeller & Co. have done their utmost to present samples of twenty-seven varieties of lubricating oils in a highly attractive manner. They deserve credit for the ingenuity of the arrangement, which consists of very long glass cylinders, of graduated sizes, enclosed on top and below in walnut.

Perfumery is exhibited, in great variety, by Hermann A. Vogelbach, Wm. M. Wilson & Co., Samuel Campbell, A. Fricke and S. C. Upham. The three first-named welcome all visitors most cordially with the perfume-diffusing atomizers. Mr. Vogelbach's American extracts meet with much favor.

McKeone & Van Haagen have a large assortment of fancy toilet soaps on exhibition. We were pleased most by their white Castile soap, made by themselves from pure olive oil, and quite equal in quality to the best imported.

The Dempsey Wicker Covered Glassware Company present their demijohns and covered bottles, furnished with glass and tin labels. These possess some obvious practical advantages, and they appear to be gaining popularity.

Perfumers' and druggists' glassware is exhibited in profusion by Whitall, Tatum & Co. and the New England Glass Company.

Jas. K. Kerr & Bros. have a workman at the Exhibition employed in the interesting process of engraving on glass. They employ for this purpose American corundum from the Unionville mine, of Chester County, which they state to be superior to the imported emery. Specimens of native and prepared corundum are exhibited in another portion of the building.

Hale & Manley make a handsome display of labels and signs.

William Holzer exhibits glass syringes, pipettes, glass models of apparatus, and other chemical glassware; also, a mammoth alcohol thermometer, twelve feet high. His workmen are constantly employed in blowing fancy toys of colored glass, before a throng of admirers, to whom they distribute a facetious circular, which dilates upon the virtues of the chemical hand-glass, by a dubious euphemism styled "the sympathy thermometer, or philosophic love-tester."

Barrows, Savery & Co. offer china-lined cluster pots in halves, thirds and quarters, affording facilities for heating either two, three or four different liquids on one fire. Although intended chiefly for household purposes, they may occasionally prove quite serviceable to pharmacists.

Richard C. Remmey exhibits some fine specimens of chemical stoneware.

N. M. Kerr & Co. display a case of choice paper boxes, some of them of novel construction, and rivalling the finest imported in elegance.

Joseph Zentmayer, the renowned optician, exhibits a case containing nine beautiful microscopes, of various powers. These have been specially made by him for the philosophical cabinet of the University of Pennsylvania.

Optical and philosophical instruments are also displayed in great profusion by James W. Queen & Co., Wm. Y. McAllister and Heller & Brightley.

Dr. W. H. Pile exhibits a selection of his well-known hydrometers, specific gravity bottles and aluminium weights.

Druggists' scales and analytical balances, of very fine workmanship, are shown by H. Troemner and Becker & Sons.

While admiring the magnificent display of slate mantels and Marezzo marbles,

it occurred to us that these substances are peculiarly suited for counters, columns and pedestals in first-class pharmacies. Every variety of rare colored marbles, from the most delicate tints to the darker shades, is reproduced with perfect fidelity by the Marezzo process. Both these and the marbled slates are much stronger than the real marble, and very much cheaper. Marezzo marble can be imperceptibly repaired when broken.

The wood carpeting, of which some fine examples are exhibited by J. W. Boughton, is also well adapted for covering the floors of pharmacies. Special designs, names, monograms, &c., can be neatly inserted, so as to present a novel and unique effect.

The Wells & Hope Co. display a large assortment of printed metallic signs and show cards, suitable for manufacturers of perfumery and specialties. Their tin signs are durable, economical and mostly of impressive designs.

As the chief incentive for opening the present Exhibition has been the desire to prepare for the Centennial, we trust sincerely that the members of our profession will diligently study it, so that they may become proficient in the art of exhibiting. Having invited the pharmaceutical world, the duties of hospitality demand of us that we should use our utmost endeavors to entertain them in a becoming manner — ADOLPH W. MILLER, M. D., PH. D.

Minutes of the Philadelphia College of Pharmacy.

The Semi Annual Meeting of the Philadelphia College of Pharmacy was held at the Hall of the College, Ninth month 28th, 1874. Twenty-four members present. Dillwyn Parrish, President, in the chair.

The minutes of the last meeting were read and approved.

The minutes of the Board of Trustees were read by Wm. C. Bakes, Secretary of the Board, and on motion, adopted.

Charles Bullock, on behalf of the Committee on Deceased Members, read a long and interesting memorial of the life and services in the College of the late Professor Procter. It was listened to with close attention by all the members present, portraying, as it did faithfully, his eminent services, from the time he entered the College until the close of his life. On motion of James T. Shinn, the memorial was accepted and referred to the Publication Committee, with instructions to have it published in the *Journal*, and also to have it printed in pamphlet form. (It will be found in full on page 512 of this number.)

Professor Joseph P. Remington, on behalf of the Committee appointed to attend the meeting of the American Pharmaceutical Association, recently held at Louisville, Kentucky, read a report, which was accepted.

The report of the Committee appointed to attend the Conference of the Pharmaceutical Schools, was read by Professor Maisch, and accepted, as follows :

To the Philadelphia College of Pharmacy:

The delegates appointed to attend the meeting of the Fifth Conference of Schools of Pharmacy, respectfully report, that the meeting was held in the Galt House, Louisville, on the evening of Thursday, September 10. The sub-

ject of titles, which had been deferred at the previous meeting held in Richmond, came up for consideration. All the Colleges represented, with one exception, reported through their delegates in favor of the time-honored degree of Graduate in Pharmacy, "and against the conferring of the title of 'Doctor in Pharmacy' upon the curriculum of our Colleges of Pharmacy, under the pretence of raising the standard of graduation. The reasons assigned for this course were similar or identical with those advanced by a Committee appointed some time ago by our Board of Trustees, in a report published on page 391 of the August number, *American Journal of Pharmacy*. The Colleges of Pharmacy adhering to this course are those of Massachusetts, New York, Philadelphia, Maryland, Cincinnati, Louisville, St. Louis and Chicago. The delegate from the Tennessee College withdrew from the Conference. The National College of Pharmacy at Washington and the California College of Pharmacy were the only Schools not represented at the Conference.

A resolution was adopted that at each Conference, two Colleges be appointed, each to propose for discussion at the next Conference, one question, which is to be communicated to the other Colleges as early as possible; the Philadelphia and Louisville Colleges of Pharmacy were appointed under this resolution.

A motion to print the Proceedings of the five Conferences was laid upon the table. The officers for the present year are: President, Charles A. Tufts, of the Massachusetts College of Pharmacy, and Prof. Jos. P. Remington of this College, Secretary.

JOHN M. MAISCH,
JOSEPH P. REMINGTON.

Prof. Maisch called the attention of members to the importance of speedily fitting up the cabinet of the College, in order that we may make a creditable display during the forthcoming Centennial Celebration in 1876.

He stated that the meeting of the American Pharmaceutical Association will be held here in that year, and that there was reason to hope that the Fifth International Pharmaceutical Congress would be held here also at that time.

He solicited the co-operation of all the members, which may be interpreted to mean a contribution of the finest specimens of chemicals, pharmaceutical preparations, and all articles of *Materia Medica*, that can be obtained, and the arrangement of the same in the cabinet of the College.

On motion of Prof. Remington, it was resolved that the Publication Committee be authorized to forward the *Journal* of the College to all our honorary members from this date forward.

This being the Semi Annual Meeting, an election for eight Trustees and the Committee on Deceased Members was ordered.

The President appointed as Tellers: Allen Shryock and J. W. Worthington, who, conducting the ballot, reported the following gentlemen elected:

Trustees.—Dr. Wilson H. Pile, Alfred B. Taylor, William C. Bakes, William McIntyre, Albert P. Brown, Edward C. Jones, Richard V. Mattison, Robert England.

Committee on Deceased Members.—Charles Bullock, Alfred B. Taylor, Prof. Jos. P. Remington.

There being no further business before the meeting then, on motion, adjourned.

WILLIAM J. JENES, *Secretary*.

Minutes of the Pharmaceutical Meeting.

The first meeting of the present session was held October 20th, 1874, J. T. Shinn in the chair. W. McIntyre was elected Registrar, E. C. Jones acting as teller. Prof. Maisch presented, on behalf of P. J. Hazzard, to the library, a work entitled "*Materia Medica of Hindoostan*, by W. Ainslie, M. D."

The Cabinet was the recipient of the following: From Betanelly & Co., Horasan and Djabon silk cocoons from Southeast Caucasus; these cocoons are used to a considerable extent in France in the manufacture of silk. The same firm also presented whole flowers and the pure powder of *Pyrethrum roseum* or Caucasian (Persian) Insect Powder. James T. Shinn presented a handsome sample of *assafetida* in tears.

Professor Bridges presented, in the name of Mr. A. Yarnal, some masses of sublimed bicarbonate of ammonia, which had been found in a barrel of the commercial carbonate lately purchased. This is an accidental product, rarely occurring in commerce. It was first noticed by Phillips, (*Annals of Philosophy*, xvii, 110), Henry (the chemist) having given it to him as an abortive result in a preparation intended for smelling salts. Phillips, on analysis, found it to be anhydrous bicarbonate, having the composition, as then expressed, of $\text{NH}_3 \cdot 2\text{HO} \cdot 2\text{CO}_2$ the ammonium hydrogen carbonate of the new chemistry, $\text{NH}_4 \text{H} \cdot \text{CO}_3$. This salt resembles the commercial carbonate in appearance, is hard, translucent and crystalline. When in a close bottle for some time a decided odor of ammonia is perceived when the bottle is opened, probably from the presence of some sesqui-carbonate. This soon disappears, and, after exposure, becomes imperceptible. It has a pungent saline taste, but none of the sharp biting of the sesqui-carbonate. Exposed to the air it does not alter, but probably evaporates slowly; like all the alkaline bicarbonates, it holds, in the presence of water, part of its carbonic acid with a weak affinity. It dissolves, at 55°F ., in six parts of water, and when a mass is placed in water minute bubbles soon form on the surface as solution takes place; these increase in number and size as the temperature rises, and become very copious at 150°F . The gas given off precipitates lime water freely. This solution of lime with an excess of the lime, when raised to the boiling point, does not affect moist turmeric paper placed in the mouth of the flask in which it is heated, showing that the gas is nearly all carbonic acid. The solution of the ammonia salt has also acquired a strong odor. This ready elimination of carbonic acid explains why solution of ammonia cannot be fully saturated with carbonic acid at ordinary temperatures. This salt, of course, is not proper for use as a stimulant, but, like the effloresced sesqui-carbonate may be used for other purposes for which the salt is adapted.

A. W. Miller exhibited oils of peppermint and lemon, adulterated to a very large degree with alcohol and castor oil, and oil of wintergreen, adulterated with alcohol. He also read a paper on adulterated beeswax, and exhibited samples of pure wax and paraffin, and of mixtures of the two, in different proportions. Dr. Miller also read a paper containing observations on the Franklin Institute Exhibition. Both papers were referred to the Publication Committee.*

* See pages 510 and 533 of this number.

Professor Maisch exhibited so-called American opium—the Wilson fraud—proven by Mr. Ebert to contain no opium, but to be probably extract of lettuce.

Dr. W. H. Pile briefly described the process for preparing bromide of ammonium, as reported by him to the American Pharmaceutical Association. The ammonia must not be poured down the same funnel as the bromine, but should be carefully distributed over the surface of the water, at the bottom of which the bromine is kept, otherwise reaction might take place with dangerous rapidity. In answer to a question by Prof. Maisch, he stated that no bromide of nitrogen was produced.

Observations were made upon water air pumps and various instruments for producing a partial vacuum.

Robert England exhibited some pictures photographed by the sun's rays, the natural colors of the object being fixed to some extent.

Upon inquiry it was stated that sulphate of cinchonidia seems to be used largely, and the good reports of its merits substantiated. Adjourned.

WILLIAM MCINTYRE, Registrar.

Pharmaceutical Colleges and Associations.

THE MICHIGAN PHARMACEUTICAL ASSOCIATION held a meeting at St. Andrew's Hall, Detroit, October 22, to consider the report of the Committee on Constitution and By-laws, which were taken up by sections, discussed and adopted. An animated discussion took place in relation to section 12, which was finally adopted in the following amended form:

"Section 12.—The adulteration of drugs and medicines, or the habitual retailing of intoxicating liquors by the glass as a beverage, shall be deemed a misdemeanor, and subject the members guilty of the same to have their names stricken from the roll of membership."

The clause referring to the retailing of liquors by the glass appears to have been objected to by some members.

After the adoption of the By-laws, the draft of a law to regulate the sale of medicines and poisons was submitted and approved, the bill being similar to the one which was before the Legislature of Michigan at its last session.

A number of queries were read, to be investigated by the members, after which the following officers were elected for the ensuing year: President, Prof. S. H. Douglass, Ann Arbor; Vice-President, S. H. Wagner, Muskegon; Corresponding Secretary, Paul Plessner, of Detroit; Recording Secretary, James Vernor, of Detroit; Treasurer, S. M. Sackett, of Monroe; Auditor, B. D. Northrop, of Detroit.

The Standing Committees were announced and the following delegates to the next meeting of the American Pharmaceutical Association appointed: S. M. Sackett, Monroe; P. Plessner, Detroit; O. Eberbach, Ann Arbor; F. Von Walthausen, East Saginaw; and James Vernor, Detroit.

The association then adjourned to meet again in Detroit, on the third Wednesday of October, 1875.

Editorial Department.

DRUGGISTS AND PATENT MEDICINES.—Under this heading, we have received a lengthy communication from one of our correspondents, Mr. James W. Long, commenting upon the speech of Mr. S. M. Colcord, extracts of which we printed upon pages 445 and 446 of our September number. Mr. Long argues that the drug and pharmaceutical business, like any other, resolves itself into a question of bread and butter, and that the apothecary is compelled to sell patent medicines; his object is not to defend the medicines, but "the druggist, who, to eke out a living or to make more money, sells them."

We find nothing in Mr. Colcord's remarks averse to the position taken by our correspondent; the former stated distinctly his views in attributing this state of things to the universal law of *demand and supply*; that the demand is created by appeals or advertisements *directed to physicians and the public*, and generally *in spite of apothecaries' aid and influence*; and that, as far as pharmacists are concerned, a thorough education will, as a rule, *prevent them from becoming successful nostrum proprietors*.

We feel compelled to endorse this position, and particularly the views of the elevating influence of sound knowledge; but even if this should be accomplished, as far as every physician and pharmacist in the land is concerned, the demands by the people for patent medicines would not cease, and hence our correspondent is perfectly correct, when he says, that arguments against these preparations should be also addressed to the public. Upon the manner in which this may be done, individual views may differ; but, for years past, we have felt convinced that a plan similar to those published on pages 90 and 350 of the present volume would accomplish more towards reducing the number of proprietary medicines and dangerous compounds indiscriminately sold, than ever so many pamphlets addressed to the public, or resolutions passed by medical or pharmaceutical societies.

To illustrate the difficult position of the pharmacist with the public, in relation to this question, we copy the following from the communication of Mr. Long:

"The pharmacist puts in a stock of drugs and fancy articles, and, after reading attentively the teachings of the pharmaceutical colleges, imagines he is a true disciple and has the thing about complete, when in comes a customer, demanding a bottle of Perry Davis's Pain Killer. Upon being told that it is not kept in stock, an uncomplimentary remark is made as to the store, and the customer goes to the nearest general store and procures it.

"Now, there are two things left open for the pharmacist: one is to tell the man that he does not keep Perry Davis's Pain Killer, but he can mix him some tincture of capsicum, ginger, number six, oil of peppermint, and a half dozen other things, and make him a pain killer, or to procure some of Perry Davis's Pain Killer. If he takes hold of the first horn of the dilemma, the physician will pitch into him for prescribing, and the only thing left for him is the second alternative.

"Here he finds a business El dorado. These large patent medicine houses

have gentlemanly agents, who visit the four corners of the earth. They come into his store, with their little satchels, their regalia cigars, and a bland smile. They tell him they will send him this or that on commission, freight paid, and will call in a year for settlement, or perhaps in six months. He concludes to try it, the temptation is great. The bill comes, the packages are handsomely done up, and the profits remunerative, and it gives his store a handsome, full appearance.

"Now, just at this juncture, comes a little affair that requires notice: There are two kinds of customers who come into a store. One asks for a specific article, pays for it, takes it and leaves. This is legitimate, and no druggist is to be blamed for it.

"But another class comes in, and asks, 'Have you got anything good for a cold?' or, 'Have you got a good liniment for rheumatism?' The farthest an honest druggist will go in his answer is to say, 'Here is an article I sell a good deal of,' or, 'Here is an article which has a good reputation'; but he is not justifiable or excusable in answering, 'Yes, sir; here is an article that I will warrant,' or, 'Here is an article that will cure your cold,' for when he does so he tells a falsehood, guarantees a preparation he knows not the ingredients of, and in this case greatly prostitutes his profession for the sake of a few dollars or cents.

"But for science to say that, in keeping them in his store and selling them, he degrades his profession, is making a statement that to swallow will choke common sense to death, and throw good business principles into an apoplectic fit.

"No person is more aware, Mr. Editor, of the immense advantages of scientific researches into pharmacy than I am, nor is any one more grateful than I of the value of just such journals as the *American Journal of Pharmacy*; but the war against patent medicines will never be a success until poor pharmacists cease to need money to buy bread and butter with.

"I believe in the elevation of the profession of pharmacy, and in the diffusion of knowledge, for it brings not only relief to suffering humanity, but practical benefit to the business man.

"Take one instance: I was struck with the formula for Effervescing Solution of Tartrate of Sodium, published in *Am. Jour. of Phar.*, July, 1873, p. 289, and tried it. At first I found it hard to introduce it, and had to take the first bottle of it myself (though, to tell the truth, I did not need it), but now it has driven citrate of magnesia, in solution, out of the market, and we have a large and increasing sale of it. Such things as these are of direct benefit to druggists as well as to the people."

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Clinical Lectures on Diseases of the Nervous System. By William A. Hammond, M. D., Professor of Diseases of the Mind and Nervous System in the University of the City of New York, etc. Reported, edited, and the histories of the cases prepared, with notes, by T. M. B. Cross, M. D., Clinical Lecturer on Diseases of the Mind and Nervous System, etc. New York: D. Appleton & Co. 1874. 8vo, pp. 291.

These lectures were delivered at the New York State Hospital for Diseases of the Nervous System, and at the Bellevue Hospital Medical College; and as they were intended especially for the benefit of students, the chief aim of Prof. Hammond has been to present practical views, fully illustrated by cases, with the results derived from treatment, as far as that was possible, and to confine himself to a full consideration of the symptoms, the causes and the treatment of each affection, particularly in their relation to the cases. The Editor has carefully prepared the history of the cases, and while the volume lays no claim to being exhaustive, it will be found to treat, in the manner indicated above

of all the more important affections of the kind, which the physician is likely to meet in his practice.

The Physicians' Visiting List for 1875 (twenty-fourth year of its publication). Philadelphia: Lindsay & Blackiston.

This well-known annual publication has been issued by the publishers.

OBITUARY.

DR. WILLIAM BARKER CHAPMAN died at Cincinnati, October 10th, after an illness of three weeks, of dysentery. The deceased was born at Pennypack Hall, near Philadelphia, June 5th, 1813, graduated at the Philadelphia College of Pharmacy, March, 1834, and came to Cincinnati April, 1835. He was associated with Dr. Eberly in the drug business until 1839, when he started in business for himself, on the corner of Sixth and Walnut streets, and afterwards moved to the corner of Court and Vine streets. When the Mechanics' Institute was finished, he opened the store there, which was long identified with his name.

In the spring of 1839 he received the degree of M. D. from the Ohio Medical College, and in the same year was united in marriage to Margaret, daughter of William Crossman. He was elected President of the American Pharmaceutical Association at their Third Annual Meeting, held in Cincinnati in 1854. During the war he was appointed Surgeon in the United States Army, being stationed at Camp Dennison. He was at the time of his death the oldest pharmacist in the city, and held a high rank among the profession. In 1872 he was elected Professor of Pharmacy in the Cincinnati College of Pharmacy, and more recently was appointed by the Court of Common Pleas one of the Pharmaceutical Board of Examiners.

Dr. Chapman was a member of the Society of Friends, and for many years held the position of Grand Master of Odd Fellows of the State of Ohio.

The following resolutions, passed by the Alumni Association of the Cincinnati College of Pharmacy, give evidence of the high esteem in which the deceased was held as a teacher and man:

"Resolved, That we who have listened with so much interest to his able and instructive lectures, and who feel so deeply indebted therefor, shall ever cherish in sacred remembrance his many deeds of kindness and earnest endeavors to implant in us the knowledge of our profession, with which he was so richly endowed.

"Resolved, That in the death of our esteemed Professor, who has so suddenly been taken from us in the midst of his duties, we have lost a devoted friend, and the College an able and honored member.

ISAAC CODDINGTON, a prominent pharmacist of New York City, died there October 14th. He was a member of the firm of I. and J. Coddington, whose store was located for many years on Broadway, corner of Washington Place, and more recently opposite Union Square. He was a member of the American Pharmaceutical Association since 1855, always evinced great interest in its objects, and when present at the meetings occasionally participated in the discussions. The deceased was a member of the New York College of Pharmacy, and for a number of years served and actively labored in its Board of Trustees.

ERRATA.—Our readers will please make the following corrections in the October number of the *Journal*:

Page 466, second line from above, read *emulsin* in place of *emulsion*.

Page 466, fifth line from bottom, read *Oi* in place of *Si*.

Page 492, seventeenth line from bottom, read 304 in place of 104.